Anogeissus leiocarpus (DC.) Guill. & Perr.

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Anogeissus leiocarpus (DC.) Guill. & Perr.

Taxonomy and nomenclature

Family: Combretaceae

Synonyms: *Conocarpus leiocarpus* DC.; *A. schimperi* Hochst. ex Hutch. & Dalz.; *A. leiocarpus* var. *schimperi* (Hochst. ex Hutch. & Dalz.) Aubrev.

Vernacular/common names: English name: African birch.

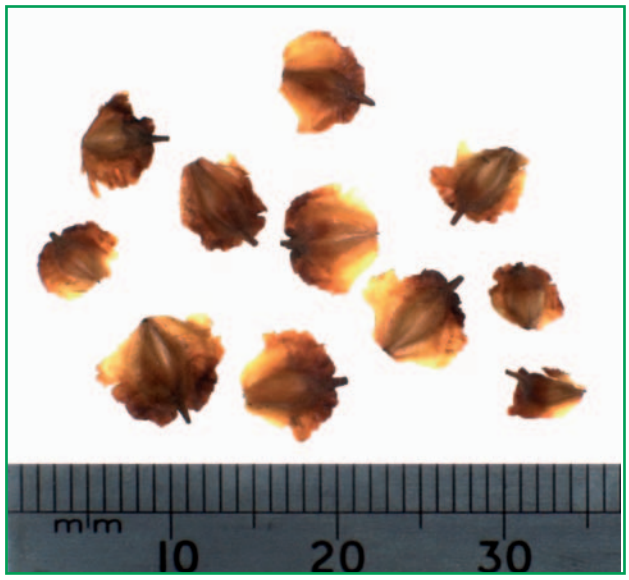
Local names: pako dudu, ayin (Yoruba), n'galama (Bambara), siiga (Moré) godoli (Peulh).

Distribution and habitat

Anogeissus leiocarpus has a large ecological distribution, ranging from the borders of the Sahara up to the outlier humid tropical forests. In west Africa it is present from Senegal to Cameroon, and extends into Ethiopia in East Africa. It grows in dry forests, fringing forests and semi-arid savannah areas. It grows around swamps, in valleys and forest galleries, where it usually forms pure, dense and closed stands. It is quite common, gregarious and locally abundant, and may be considered a pioneer species on open forest clearings. It is typically found at altitudes of 450 to 1900 m. It can grow on a range of soil type including compact clay soils (Vertisols). *A. leiocarpus* is listed as »Vulnerable« on Burkina Faso's national biological diversity monograph because of its very high uses. It has a very slow initial growth, low regrowth ability and is very sensitive to bush fire. These factors, in addition to the poor germination of its seeds, are adverse factors for long term conservation and sustainable uses of the species.

Uses

The wood of *A. leiocarpus* is well appreciated as a carving wood and is used for construction and tool handles because it is fairly insect and termite resistant. It has yellowish sapwood, and a dark brown-black core. It is important for firewood and charcoal production. The ashes are used for tanning leathers and the leaves and bark are used as yellow dyes for fabric and leather. The gum is used to make ink more viscous or to glue leather and is used occasionally as arabic gum replacement. The roots are used as chew sticks for cleaning teeth, and the leaves as fodder for small ruminants. Leaves, roots and trunk bark are used by traditional practitioners for the treatment of helminthiasis, trypanosomiasis, malaria and dysenteric syndrome. Other medicinal uses include treatment for diarrhoea, fever, coughs, rheumatism, leprosy, wounds and skin diseases. *A. leiocarpus* extract shows excellent activity against the bacteria responsible for opportunistic infections caused by multidrug-resistant *Pseudomonas* and *B. cepacia* in addition to activity against MRSA bacteria causing dental caries and periodontal disease. The glucoside, recently described in this species, showed antimicrobial activities.



A. leiocarpus seeds from Burkina. Photo: H. Vautier.

Botanical description

A. leiocarpus is a tree of up to 30 m in height, typically 15-18 m with light green foliage. The trunk is wider at the base and sometimes striped. The crown is dense and the branches are often drooping. The bark is grey to beige in colour, becoming blackish with age, and fibrous with thin scales. The stems are finely pubescent. Leaves are alternate to subopposite, elliptic to ovate-lanceolate in shape, and 2-8 cm long and 1.5-3.5 cm across. The leaves are acuminate or mucronate at the apex and cuneate at the base. The petiole is 1-6 mm long. Individuals growing in drier areas tend to have smaller leaves and hairier flowers. The inflorescence is a spherical, axillary and terminal cluster. The yellow-green scented flowers are brownish-orange at the centre and with white hairs. The flowers are bisexual, apetalous, 5-6 mm in diameter, and with 10 stamens.

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Fruit and seed description

Fruit: Fruits are yellowish to reddish brown, trapeziform samaras, 4-7 mm long and 6-10 mm across. When on the plant, the fruits are in dense subglobose cone-like heads. Each fruit is broadly winged, and beaked by a persistent tubular portion of the receptacle and contains 1 seed.

Seed: Seeds are small in size but are produced in high number, about 140 000 seeds per kg (TSW = 6-8 g).

Flowering and fruiting habit

Flowering occurs at the end of the dry season, or the beginning of the rainy season, just after leaf flushing. The seeds are dispersed by wind.

Harvest

The dry fruits are harvested from adult trees by manually shaking fruit bearing branches and then collecting from the ground. Fruits are typically mature between March and June in West Africa.

Processing and handling

Seeds are manually extracted by removing the winged pericarp. Extracted seeds are fragile and easily damaged. Seed extraction should preferably be delayed until just before sowing, thus being a pretreatment.

Storage and viability

Seeds are orthodox and can be dried, cooled and stored. In the MSB seeds of this species have been stored since 1998. Because of the risk on mechanical damage of extracted seeds, entire fruits are often stored.

Dormancy, pretreatment and germination

Germination percentage of collected seeds is usually low. This has been shown to be primarily due to a large proportion of infertile ovules (sometimes up to 95%). Infertility could be due to lack of pollination or inbreeding. At CNSF a maximum germination of 10-15% can be reached. However a thorough cleaning and selection (sorting) methods that were used at CRRA Sikasso, Mali, managed to eliminate most infertile seeds. Elimination was based on small size (though not all bigger seeds have normal embryo). In this way germination was increased to more than 50%. Even higher germination, up to 90%, was achieved when seeds were removed from their covering structures and sown for germination on 1 % agar, at 26°C with a daily photo period of 12/12 h (RBG Kew, Wakehurst Place).

Selected readings

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